

# William Chargin

 [git.io/wc](https://git.io/wc) •  [wchargin](mailto:wchargin) •  [wchargin](https://www.linkedin.com/in/wchargin)  
Computer Science, Cal Poly San Luis Obispo

Please visit my website at [git.io/wc](https://git.io/wc) for an interactive CV,  
and more up-to-date and detailed project descriptions.

## Overview

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I'm a first-year computer science major at Cal Poly San Luis Obispo (expected graduation in 2018). I have extensive experience in Java and Python programming, as well as solid knowledge of C and shell programming. I've worked on teams with large code bases (e.g., around 200,000 lines of C++ code), can quickly pick up new languages and frameworks, and am known for meticulous documentation!

## Experience

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### Cal Poly Computer Science Department

*Course Assistant for CSC 102*

**San Luis Obispo, CA**

*Fall 2014–present*

- Designed, implemented, tested, and documented a flexible and extensible automated grading system.
- My system evaluates and grades programming assignments for CSC 102, and generates helpful, textual feedback for students.
- Created grading scheduler, and integrated with cron to create a completely hands-off grading process.
- Fully documented, with a proper man page and user guide for instructors and graders.
- Please visit my website (at [git.io/wc](https://git.io/wc)) for more information on this project.

### Army High Performance Computing Research Center

*Student Researcher*

**Stanford University**

*June–August 2014*

- First pre-undergraduate student ever admitted to this research program.
- Studied diverse topics in computer science, mathematics, and engineering/computational geometry.
- Developed real-time physics simulations on low-powered portable devices, adapting extensive existing physics libraries for Android tablets. (See *Projects* below.)
- Received verbal commendation on excellence of research report.

### Model United Nations (League of Creative Minds)

*Head Delegate; Undersecretary-General of Technology and Innovation*

**Burlingame, CA**

*2011–2014*

- Developed a unified debate management system, facilitating timing, voting, speech analysis, etc. (See below.)
- Chaired debate committees, and delivered technical and scientific briefings to students.
- Ran technology (mainly AV, networking, communications) for about a dozen conferences over three years.
- Received the Model Diplomat award for my contributions in technology.

## Projects

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### Real-time portable physics.....

While working at AHPARC, I developed real-time physics simulations on low-powered Android tablets. My work included articulated rigid body, cloth, smoke, and dynamic paint simulations. I also implemented such rendering features as UV mapped textures and fog. I designed a novel algorithm for placing points on a 3D triangulated mesh according to a given density function. I also designed a system to efficiently simulate arbitrarily complex urban environments.

## Advanced computer science curriculum.....

During my senior year of high school, I pursued college-level computer science coursework in an independent study designed by a full-time Microsoft Software Engineer. My studies included: basic algorithms and data structures (implementing searching and sorting, trees, disjoint sets, graphs, hash tables, and more); concurrency (e.g., synchronization, semaphores, mutexes); dynamic programming; bit operations; image edge detection; and more. I used a public repository located at [github.com/WChargin/apcs](https://github.com/WChargin/apcs) for my projects; interactive demos available there.

## Model United Nations debate moderation system.....

Technology problems plague Model UN conferences. To address these, I created and deployed an application system that unifies the tools that chairs need to aptly moderate debates. My system has been used at multiple conferences, by dozens of chairs and hundreds of delegates. It is open source and available at [wchargin.github.io/kiosk/](https://wchargin.github.io/kiosk/).

## Introductory game development library.....

I designed and implemented the Java library JGame to enable students to focus on learning computer science and game development concepts instead of worrying about idiosyncratic implementation details. My framework is widely used by students at my high school; some student projects based on my library are public at [bit.ly/jgameprojects](https://bit.ly/jgameprojects). JGame projects are cross-platform and work as either desktop applications or web applets. JGame is open source and available at [wchargin.github.io/JGame](https://wchargin.github.io/JGame).

## Selected computer languages and systems

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**Java 6/7 and Eclipse:** Expert

**HTML/CSS:** Advanced

**L<sup>A</sup>T<sub>E</sub>X:** Comfortable

**Blender 3D:** Advanced

**Python 2, 3:** Advanced

**C:** Proficient

**Vim:** Love it

**Git and GitHub:** Proficient

## Academic honors

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- Honors Program, Cal Poly San Luis Obispo
- National Merit Scholar
- National AP Scholar
- Valedictorian
- Inter-Departmental Award (first ever awarded)
- Most Outstanding Math and Science Student
- Best Delegate (WEMUN 2011, Beijing)
- Model Diplomat (LCMMUNC 2013)

## References

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**Kurt Mammen**

[kmammen@calpoly.edu](mailto:kmammen@calpoly.edu)

Professor Mammen teaches introductory and advanced computer science courses at Cal Poly. We meet frequently to discuss the requirements, design, and results of my automated grading system.

**Arvind Shrihari**

[arvindshrihari@outlook.com](mailto:arvindshrihari@outlook.com)

Mr. Shrihari is a Software Development Engineer II at Microsoft; he also co-taught the AP Computer Science course at my high school. He designed and supervised my independent study.

**Barbara Bryan**

[bbryan@stanford.edu](mailto:bbryan@stanford.edu)

Ms. Bryan directs the AHPARC Summer Institute, which I attended in 2014. She works closely with both instructors and principal investigators to monitor and assist students.